BOTANICAL GAZETTE.

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ADDITIONS TO AND CORRECTIONS OF THE "CATALOGUE OF FOREST TREES OF THE UNITED STATES."—Since the publication of the "Catalogue of Forest Trees of the United States," in 1876, several omissions and errors have been noted, which I wish to make the subject of a few notes.

The *Anona*, No. 9 of the Catalogue, has been determined as *A. glabra*, L. See Dr. Chapman in BOTANICAL GAZETTE, for January, 1878.

Several trees that had been credited to Florida were omitted in the Catalogue from an opinion that they had not been verified in many years and might have been admitted improperly. Dr. Chapman stated that *Swietenia Mahogani* L, was admitted into the Flora on the ground of some pods found on the coast by Dr. Leitner. Specimens of this tree have recently been collected by Dr. Garber at Lignum Vitæ Key, west coast of Florida. *Hibiscus tiliaceus*, L., was also collected by him at Miami, Florida. Whether it is there indigenous or only naturalized we are not informed. It is the only Malvaceous tree within our limits. At the same place Dr. Garber also collected *Scutia sarcomphala*, Bong, and *Erythrina Corallodendron*, L., the latter with a trunk 17 inches in circumference. At Lignum Vitæ Key he also collected *Drypetes coriacea*, growing from 20 to 40 feet high. On the Keys opposite Sarasola he found a species of Olive 15 to 20 feet high, growing in the wild hummocks, where, he says, it may have been introduced, but is now well established. *Terminalia Catappa*, L, and *Psidium buxifolium*, Nutt., are described as Florida trees in Nuttall's addition to Michaux's Sylva.

Dr. Garber writes us that Dr. Chapman now thinks that *Ulmus Floridana* of the Southern Flora is only a smooth form of *U. Americana* with the flowers more racemose. We are not in possession of any more information respecting *Fraxinus Curtissi*, No. 211 of the Catalogue. Dr. Gray thinks it may be a form of *F. Americana*. Since the publication of the Catalogue Prof. Watson has established a *Populus Fremontii*, a poplar of New Mexico and Arizona, which had previously been regarded as a form of *P. monilifera*.

No. 272 of the Catalogue (*Quercus Prinus*, var., *monticola*) must be omitted, as Dr. Engelmann ("The Oaks of the United States," in Trans. St. Louis Acad. Sciences) has shown it to be a typical species, and very different from any others of the White Oak group, while No. 273 he describes as a distinct species under the name of *Q. Muhlenbergii*=*Q. Castanea*, Muhl. He considers *Q. prinoides*, Willd., a sub-species of this, the connection of forms being found in Kansas and Nebraska, where "it bears abundantly when only 1–3, or up to 30 feet high."

Dr. Engelmann's new species, *Q. tomentella*, from the Island of Guadaloupe, off the coast of California, should be added to the Catalogue.

No. 343 of the Catalogue, *Pinus resinosa*, Ait, grows 100 to 150 feet high in the Michigan pine region, according to Prof. C. E. Bessey, of the Iowa Ag. College.

No. 364 It now appears, according to Dr. Engelmann, that the specimens growing east of the Sierras, which have usually been referred to as *Pinus Balfouriana*, Jeff., are only a form of *P. aristata*, Eng. Specimens of the true *P. Balfouriana* we have since received from the Sierras of California and Nevada, which are identical with the original Oregon specimens on which the species are founded.

No. 384, *Abies amabilis*, Dougl., it appears, must be superseded by *Abies magnifica*, Murray, certainly a very appropriate name. The remarks of Mr. Dufur, quoted under this number, probably relate to a form of *A. Douglasii*.

The specific character of No. 386, *Abies nobilis*, Lind., seems to be somewhat unsettled. Drs. Hooker and Gray incline to the opinion that *A. nobilis* and *A. magnifica* may be forms of the same species. Further investigation is much needed.

No. 387, *Abies bracteata*, Hook. The statement that it grows in Oregon, made on the authority of Gordon, is probably a mistake. It is only positively known from the Santa Lucia Mountains., in Southern California.

No. 402, *Cupressus MacNabiana*, Murr. I had received under this name, from the coast range north of San Francisco, specimens of a *Cupressus* which was said to grow 50 to 190 feet high. I think it is the same which was described as a new species by Mr. Begg, of California, and at a meeting of the Philadelphia Academy of Science in 1876. My specimens are decided by Prof. Watson to be *C. Goveniana*, Gordon, which he thinks may be only a form of *C. macrocarpa*. Gordon describes both *C. MacNabiana* and *C. Goveniana* as only bushes 6 to 10 feet high. Probably one or two more California specimens of *Cupressus* may yet claim a place in the Catalogue.

No. 408, *Juniperus Virginiana*, var., *Bermudiana*. This variety according to Dr. Engelmann is not *J. Bermudiana*, L., which is a little known species of the Bermudas and other West Indian Islands.

No. 411, *Juniperus occidentalis*, var., *Texana*, is what Dr. Engelmann doubtfully calls var. *conjugans*. To me it appears more like a variety of *J. Virginiana*, but very possibly may be a distinct species

Juniperus pachyphlœa, Torr., must be added to the Catalogue. A fine wood section of this species was received from Dr. Palmer (collected in Arizona) after the Catalogue was published. It is very different in some characters from any other Juniper of our country.

Thrinax Garberi, Chap., must be added to the Catalogue. Found in rocky, pine woods near Miami, Southern Florida, by Dr. Garber, in 1877. See BOTANICAL GAZETTE, February, 1877.—GEORGE VASEY.

CASSIA NICTITANS.—This, in these parts common little annual, is now (October 15 dead—dry plants, covered with seed-pods are all we can find. To-day I came across a patch by the railroad, which the track-hands had mowed off early in the season. These had some dry pods from the early flowers, but a new growth came out after the mowing, and these plants were yet green, and flowering profusely.

Having had occasion to watch this plant very closely last summer on account of directions for my artist, I noticed that wherever fertilization was not accomplished the flowers wholly withered away, as is common in most plants. In these October flowers I find a large number form only a calyx and gynœcium having but imperfect stamens and no petals. Some produce petals, but these remain closed, and the stigma protrudes like a green pin-head on the mass of orange yellow. In many of these cases the anthers are polleniferous, but the closed petals seem to prevent any contact of pollen with the stigma. I can find no trace of pollen on any of the stigmatic surfaces. In the normal summer flowers the ovarium is quite large before the sepals and petals fall. In these they are extremely small when the floral envelopes have disappeared, and remind one very much of the appearance of cleistogenous flowers of Amphicarpœa or Impatiens, and like these they evidently go on and perfect their capsules, but unlike the true cleistogene flower, produce no seeds. In none of the capsules apparently formed in this way could I find a single seed.

The interesting lesson is that while under some circumstances the ovarium no more than the seed can be perfected without pollenization; under others the one may be

perfected, and it is particularly interesting to one who like me, believes that the behaviour of flowers in relation to matters connected with fertilization is much more varied than many suppose.—THOMAS MEEHAN.

PLANTATIONS AT WARRIORSMARK, PENNSYLVANIA.—It is not often, in this part of Pennsylvania, we can find a piece of land protected for a series of years alike from the inroads of cattle and from the labors of the agriculturalist.. We have such a preserve here, and I wish to tell you how it was planted and what is growing on it. It is only a story of what the birds, squirrels and winds are doing. Did you ever visit a Pennsylvania iron-ore bank, where the brown Haematites are raised from their beds of clay and sand, by windlass from shafts, or by open cut? Such a location is our preserve. Forty years ago, on the summit of a hill, 1,200 feet above tide, surrounded on all sides by cultivated lands, ore was found. A strip of land ten rods wide by fifty rods in length, seems to have defined the largest deposit. For many years thousands of tons of ore were mined. The ore was found on the surface and at varied depths below the surface, reaching to one hundred and ten feet; sometimes interrupted by a clay or sand belt, which, coming to the mouth of the shafts intermingled with ore, made large refuse deposits. Irishmen with carts, wagons, mules and "ore buggies" held exclusive possession, and all traces of vegetation disappeared. The surface was irregular. Abandoned shafts made crater-like pit holes; open cuts over heavy ore deposits, left their mark in the shape of drepressions from ten to fifteen feet deep, with varied exposures. This area, in connection with some land then, and for many years preceeding, under the usual cultivation of a farm, was fenced in, and planted in 1858, with European Larches and *Robinia Pseudacacia*. Cattle have been carefully excluded, and no agricultural implement has been permitted to be used inside its boundary since that date. For many years under this treatment it did not promise much in the line of beauty. The clay banks around old shafts remained bare and yellow, and to this day defy all the mellowing influences of our atmosphere, refusing to bring forth floral life, excepting here and there a straggling specimen of *Pinus rigida* and *Populus grandidentata*. The Larches have made a fine growth, ranging from twenty to forty feet high. An irregular carpet of grasses, chiefly *Poa brevifolia*, *Danthonia spicata* with *Carex Pennsylvanica* now covers that portion of the inclosure where the ore was mined. The native wild plants began to reappear, and every year some old friend in this new location has greeted us. Our census including foreign agricultural waifs enumerates upwards of one hundred and forty species, and still they come year by year, a pleasant surprise. This morning I note the first appearance of *Lycopodium clavatum* and *L. lucidulum*, close to two other species of that beautiful family, which have long lived in that area, viz.: *L. complanatum* and *L. dendroideum*. We have many seedling Larches. One large Red Maple has given an annual colony of young plants from the scattering of seeds by the winds, 'till they may be counted by the hundred. *Rubus villosus* takes possession of all unoccupied openings, and is making such progress that we will soon be constrained to limit its increase. This preserve is now very much admired for its beauty. I add a list of species noted as growing inside its area, which is about three acres in extent:

Abies Canadensis,
Acer rubrum,
Achillea millefolium,
Ambrosia artemisiaefolia,
Amelanchier Canadensis,
Agrimonia parviflora,
Anemone nemorosa,
Antennaria plantaginifolia,
Apocynum androsaemifolium,
Aralia nudicaulis,
Archangelica hirsuta,
Asclepias Carnuti,
Asclepias obtusifolia,
Asclepias tuberosa,
Aspidium spinulosum,
Aster cordifolius,
Aster ericoides,
Aster macrophyllus,
Aster prenanthoides,
Aster puniceus,
Aster sagittifolius,
Azalea nudiflora,
Baptisia tinctoria,
Bidens frondosa,
Bidens connata,
Botrychium lunarioides,
Botrychium var dissectum
Calamintha clinopodium,
Carya tomentosa,
Capsella Bursa-pastoris,
Carex Pennsylvanica,
Carex laxiflora,
Carex triceps,

Chimaphila maculata,
Cerastium nutans,
Cerastium vulgatum,
Chimaphila umbellata,
Carex stipata,
Castanea vesca,
Ceanothus Americanus,
Carex scoparia,
Carex Muhlenbergii,
Carex rosea,
Cnicus lanceolatum,
Comptonia asplenifolia,
Cornus paniculata,
Cornus alternifolia,
Conium maculatum,
Crataegus coccinea,
Danthonia spicata,
Epigæa repens,
Eragrostis capillaris,
Erigeron Canadense,
Erigeron bellidifolium,
Erigeron Philadelphicum,
Euphorbia corollata,
Euphorbia maculata,
Fragraria Virginiana,
Gaylussacia resinosa,
Gnaphalium decurrens,
Gnaphalium polycephalum,
Hedeoma pulegioides,
Hieracium scabrum,
Hieracium venosum,
Hieracium paniculatum,
Hypericum corymbosum,
Hypericum perforatum,
Juncus tenuis,
Juncus effusus,
Juniperus Virginiana,
Kalmia latifolia,
Lactuca elongata,
Larix Europea, seedlings.
Lespedeza hirta,
Lobelia inflata,
Luzula campestris,
Lycopus Virginicus,
Lysimachia quadrifolia,
Lycopodium clavatum,
Lycopodium complanatum,
Lycopodium dendroideum,
Lycopodium lucidulum,
Magnolia acuminata,
Nyssa multiflora,
Œnothera biennis,
Œnothera pumila,
Oxalis Acetosella,
Panicum autumnale,
Panicum depauperatum,
Panicum latifolium,
Phleum pratense,
Pinus strobus,
Pinus rigida,
Phytollacca decandra,
Poa brevifolia,
Poa pratensis,
Polygonum Pennsylvanicum,
Polygonatum biflorum,
Populus grandidentata,
Potentilla Canadensis,
Prunus serotina,
Pyrola rotundifolia,
Pyrola chlorantha,
Pyrola elliptica,
Pyrola secunda,
Pyrus arbutifolia,
var melanocarpa,
Pyrus coronaria,
Pyrus aucuparia,
Quercus alba,
Quercus coccinea,
Quercus prinoides,
Quercus ilicifolia,
Rosa lucida,
Ribes hirtellum,
Rubus villosus,
Rubus Canadensis,
Rudbeckia hirta,
Rumex acetosella,
Salix humilis,
Sambucus Canadensis,
Sassafras officinale,
Saxifraga Virginiensis,
Senecio aureus,
var obovatus,
Sisyrinchium Bermudiana,
Setaria glauca,
Solidago arguta,
Solidago bicolor,
Solidago cæsia,
Solidago Canadensis,
Solidago ulmifolia,
Solidago nemoralis,
Solidago squarrosa,
Spiranthes gracilis,
Thalictrum anemonoides,
Trifolium repens,
Trifolium pratensis,
Ucularia perfoliata,
Verbascum thapsus
Vaccinium Pennsylvanicum,
Vaccinium stamineum,
Vaccinium vacillans,
Viola cucullata,
Viola sagittata,
Vilfa vaginæflora,
Vitis cordifolia,
Veronica officinalis,
Veronica peregrina.—

J. R. LOWRIE.

POTATO PIERCED BY GRASS.—Mr. A. C. Brigham, of Trumbull, Ohio, sends me a freshly dug potato which has been pierced completely through by a growing stem of grass; probably *Poa pratensis*. The potato is three inches long and two inches thick, of regular shape, and with a smooth, uninjured skin. The grass entered from the side, near the "stem" end of the potato, and issued at the "eye" end, its course being somewhat curved. If it entered vertically, as is probable, it emerged horizontally, being carried forward, perhaps, by the contemporaneous growth of the potato. The original root of the grass was not seen, that part being broken away an eighth of an inch outside of the point of entrance. Dissection reveals the perfect stem of the grass imbedded in the center of the potato. After emergence the grass struck upward in a vigorous shoot five inches beyond the potato, appearing above the ground in half a dozen green leaves. Many long, tender roots extend out from the stem above its point of liberation. The potato suffered no discernible irritation at being thus pierced, and the grass, also, was in no way exhausted by its exploit.—ALBERT A. WRIGHT, Oberlin, Ohio.

NELUMBIUM LUTEUM.—I just saw specimens of *Nelumbium luteum* from Grass Lake, Lake Co., Illinois. It is a new locality for the plant, which is by no means common here.—M. HARRINGTON, *Sycamore, Ill.*

ASTER TRADESCANTI AND A. MISER.—In response to a query in a recent GAZETTE, we have received the following:

A. Tradescanti is distinguished from *A. miser* by its greater smoothness; by the more definitely racemed inflorescence; and by the less marked serration of the middle of the more slender leaves; in var. *fragilis* the margin is entire. Both species are perplexingly variable, but, in my judgment, they may be clearly determined by the above points.—M. B. F.

A VALUABLE FERN CATALOGUE.—Mr. Geo. E. Davenport has in preparation, and nearly ready for printing, a Catalogue of the N. A. Ferns (north of Mexico) in the Davenport Herb., Mass. Hort. Soc., with notes giving localities, time of collection, names of collectors and donors, with occasional critical remarks, which he will publish provided he can obtain subscribers enough to enable him to do so. It will probably make a neat pamphlet of some twenty pages, and be a complete and accurate catalogue of N. A. Ferns based on actual specimens, with an appendix giving a list of all the doubtful species. The price will, of course, depend upon the number of subscribers, but probably in no case will it exceed 50 cents per copy. Subscriptions may be sent direct to Mr. Davenport's address at Boston, Mass.

THE LAW GOVERNING SEX.—Mr. Thomas Meehan referred to his observations originally reported to the Academy, developing an entirely new view of the laws of sex from that formerly prevailing, and which proved that what we called the female sex or final reproductive element in flowers, required a higher grade of nutritive power to perfect than the male. Though numberless facts have proved this point, there have always been some which, though they have offered no obstable, have at least not been capable of explanation by the light of this theory, and among these have been some connected with diœcious plants. Among hermaphrodite and especially among monœcious plants there has been no difficulty in tracing the operation of this principle. In such coniferous trees as pines, firs, and larches, there is no difficulty in perceiving that branches once bearing female flowers, and maturing cones and seeds, produce nothing but male flowers when the branches come in time to be weakened by the shade of younger branches, or in some other way are imperfectly nourished. But when we come to the red cedar, *Juniperus Virginiana*, where cone trees are always wholly male, and others always seed-bearing, no difference could be found in the vigor of the trees. As in the monœcious cases we found the female element in exact proportion to nutritious advantages, we looked for the seed-bearing trees of the red cedar to be more vigorous than the males, but found instead all equally vigorous and healthy.

The enormous crop of seed borne by the silver maple this year, together with the confirmation of their truly diœcious character, have not only furnished an explanation of the apparent anomaly, but at the same time affords one of the best possible illustrations of the new theory.

As already noted in communications to the Academy, the flowers in *Acer rubrum* and *Acer dasycarpum* are alike in all trees when the petals first open. The anthers seem perfectly formed when another stage of growth commences. The pistils elongate in the female flowers while the filaments remain stationary, and the anthers never open; while in the male flowers the pistils do not grow, but the filaments elongate, and the anthers are carried on to perfection. Each tree is in fact strictly a male or a female tree.

It is a matter within common knowledge that after the maturity of the immense crop of seeds last month, the bearing trees were comparatively leafless, while the completely barren male trees abounded with foliage. There is a well-known morpho-

logical law, that the parts of flowers and the resulting seed vessels are metamorphosed leaves. In the case of these maples, the female trees, engaged in developing primordial leaves to perfect fruit, make few leaves in addition to those they started with in the spring, until, after several weeks, their fruitage has been completed. But the male flowers, dying immediately after perfecting their pollen, the male trees push into a heavy leaf growth, clothing the tree at a very early period with a dense foilage.

But another consideration intrudes itself here. The woody parts of a tree are made up mainly from the atmosphere through the medium of the leaves, and we may suppose that the greater the proportionate amount of leaves, the greater would be the woody product. Applying now these acknowledged principles to these maple trees, we find some remarkable results. Notwithstanding the male trees are relieved from the enormous strain on the powers of nutrition which the annual and often wonderfully heavy crops must entail; and notwithstanding they have, as in many cases this season especially, the advantage of a hundredfold more foilage at so early a period in the season, male trees are no larger, vigorous, or in any way more healthy than the female ones. In a crowded group of five trees, where a female tree is the central one, and a male on the outside, the male, with every advantage of food for the roots, and light and air for its large crop of leaves, and which happens to be an unusually large mass of foilage even for a maple tree, the girth of the trunk is four feet three inches, while the crowded female tree is five feet five inches, or two inches larger, with all its disadvantages.

We have been looking for weaker individuals in the male than in the female trees. But since he had first made his discoveries we have learned to distinguish much more clearly between vegetative and reproductive force. A large man is not necessarily a strong man in what we should call vital power; but we measure it by endurance under severe trials, and we see now that we need not have looked for weaker trees among the cedars or other dioecious trees, so much as for powers of endurance under reproductive or other essentially vital strains. Here we have this power thrown heavily in favor of the female tree; and he submitted that dioecism in trees instead of being an objection, is a powerful argument in favor of his views. [Verbal communication of Mr. Thomas Meehan to Acad. Nat. Sci. of Phila., June 4, 1878. From Proceedings, Part II.]

Recent Publications.—*Forest Geography and Archæology.—A Lecture delivered before the Harvard University Natural History Society, April 1st, 1878. By Asa Gray.*—In this masterly paper the author comes to the conclusion, fully corroborated by late geological discoveries in the arctic regions, "that the high, and not the low, latitudes must be assumed as the birth-place of our present flora; and the present arctic vegetation is best regarded as a derivative of the temperate." The distribution of forests is explained to be in accordance with the well known principles of physical geography, but no attempt is made to account for the anomalous features of the Pacific forest, as the author intimates it would lead simply to conjectures. The similarity between the vegetation of our own Atlantic slope, and that of the western coast of the Pacific, is well brought out and is so remarkable that Dr. Gray professes he will not be surprised to hear of a *Sarracenia* or *Dionæa* turning up in Eastern Asia. The object of the lecture was well accomplished in showing "that the races of trees, like the races of men, have come down to us through a pre-historic period; and that the explanation of the present condition is to be sought in the past, and traced in vestiges, and remains, and survivals; that for the vegetable kingdom also there is a veritable Archæology.

Report of the Botanist: [Chas. H. Peck.] Made to the Regents of the University of the State of New York. From the Thirtieth Annual Report.—The contents of this Report are best expressed by the summary given by the author himself. Suffice it to

say, that Dr. Peck is a most indefatigable worker among our fungi and it almost seems probable that his name will be appended to as many North American fungi as that of Linnæus to our phænogams. Since the date of the last report, specimens of 165 species of plants have been mounted and placed in the Herbarium, of which 130 were not before represented in it. Specimens have been collected in the counties of Albany, Essex, Greene, Hamilton, Otsego, Rensselaer and Saratoga. These represent 132 species new to the Herbarium, 129 of which are fungi, of these 60 are regarded as new or previously undescribed species. Of course the new species are described and some of them figured in the two plates at the end of the report.

Contributions to the Flora of Iowa—No. III. By J. C. Arthur.—The author adds some 65 species to his catalogue of the Iowa flora and also describes three not found in Gray's Manual, viz.: *Desmodium Illinoense*, Gray, *Scutellaria parvula*, Mx., var. *mollis*, Gray, and *Echinospermum deflexum*, Lehm. *Amarantus Blitum* (No. 668) of the catalogue proves to be *A. blitoides* of Watson, a description of which is appended; and *Aster Novi-Belgii* (No. 371) is to be stricken out.

The Pine, its life and importance in Essex County. By John Robinson.—A good description is given of the life of a pine, commencing with the seed, then follows an account of the Conifers found growing in Essex County, Mass. There are 10 of them, viz.: *Pinus rigida*, *P. resinosa*, *P. Strobus*, *Abies nigra*, *A. Canadensis*, *Larix Americana*, *Cupressus thyoides*, *Juniperus communis*, *J. Virginica*, and *Taxus baccata*, var. *Canadensis*.

Science News, Vol. 1, Nos. 1 & 2, November 1 & 15.—We have here a new candidate for public favor, published by S. E. Cassino, under the editorial management of Ernest Ingersoll and Wm. C. Wyckoff, of New York. It is a semi-monthly periodical of 16 pages, octavo, printed in two columns, and is furnished at $2.00 per annum. According to the salutatory address "To the Public," its object is a most general one, namely, to advance the interests of science. It promises to give prompt publication of scientific news in every department of science, and especially in that of natural history and biology. The first two numbers carry out very well the promise of the editors, and from the prominent names enrolled among the contributors subscribers can undoubtedly expect more than the worth of their money. We wish the new enterprise every success, and that it may accomplish what many scientific publications of to-day do not, that is, pay its way. We might express the wish that the paper at first sight did not so much resemble an adversising sheet, but the turning over of a few pages reveals the substance within.

Bulletin of the Torrey Botanical Club, Oct.—Prof. Eaton announces that four new species of tropical ferns have been recently discovered in Florida, one by Dr. Garber, one by Mr. A. H. Curtiss, and two by Mr. W. H. Shockley. They are *Ceratopetris thalictroides*, Brongneart, *Cheilanthes microphylla*, Swarts, *Aplenium firmum*, Kunze, and *A. ricutarium*, Swartz. Mr. Meehan writes that the *Calluna vulgaris* reported as growing two miles from Egg Harbor City, New Jersey, is not indigenous at all, but was planted there by a man from England. He thinks that the other reported localities had better be more thoroughly examined. Mr. J. W. Congdon makes the very flattering announcement that *Shortia galacifolia*, Gray, has been discovered by Mr. M. E. Hyams, of Statesville, N. C. It was found last year in McDowell & Co., N. C. The plant is so rare that heretofore only one known specimen existed, and that was at the Jardin des Plantes, in Mvchaux's herbarium.

The American Naturalist, Nov.—This number is especially rich in botanical articles, containing no less than three, besides the general notes. They are "*Aspidium spinulosum* (Swartz) and its Varieties," by Geo. E. Davenport; "On the Natnral Succession of the Dicotyldens," by Lester F. Ward; and "About Weeds," by W. W. Bailey. Mr.

Davenport, after a study of *aspidium spinulosum* and its varieties, comes to the conclusion that the varieties included under the *intermedium* and *Boottii* are entitled to specific rank. The latter he accordingly restores to specific rank as *A. Boottii*, Tuckerman, but the former cannot be called *A. intermedium*, Willd., for that name has been wrongly applied to our plant, and Willdenough's description has nothing to do with the form in question, but with *A. spinulosum*. This leaving no name for our American form, Mr. Davenport gives the name *A. Americanum*. Mention is made in the general notes of a new classification of the Vegetable Kingdom proposed by Prof. Carnel, of Pisca, in his recent work La Morfolojia Vegetale. He proposes to divide it into five primary groups, namely: 1. *Phanerogamia*; 2, *Schistogamia*, including *Characeæ* only; 3, *Prothallogamia*, or Vasucular Cryptograms; 4, *Bryogamia* (synonymous with *Muscineæ*); and 5, *Gymnogamnia* (Thallophyta or Cellular Cryptograms.

—A curious result of the effects of sharp frost is noted by a correspondent of *The London Gardeners Chronicle*. Polyanthus flowers of very deep crimson hues, especially those approaching to black, presented an appearance as if scorched, while those of light colors were comparatively uninjured. Early primroses in the open ground showed the same peculiarity.

—The Iowa Agricultural *College Quarterly* cites census statistics of 1875, showing that the area of natural forest in that State is but $6\frac{1}{2}$ per cent. of the whole surface, and that fully half of all the trees are along the Des Moines River. Up to the date named the woodlands had been increased artificially one thirty-third.

—According to *Revue Horticole*, the Dutch protect fruit blossoms from untimely frost by placing vessels of water at the base of the tree or plant, taking care to remove ice if any forms. Doubtful as the plan appears, it is said to be more efficient than coverings of canvas or branches.

—A gardener in England removes green algal and confervoid growth from damp walls, and keeps it down a year or longer by painting with a solution of chloride of lime. The same application is made to gravel walks with a watering-pot, with equally satisfactory results.

—Among noteworthy specimens seen at the recent Edingburg Fungus Show was a *Polyporus giganteus*, three feet six inches in diameter, and a puff-bail (*Lycoperdon giganteum*), fifty-four inches in circumference and weighing twenty pounds.

—An old record refers to a plant of China-grass (*Bœhmeria nivia*) which, sent from England to the island of Jamaica in 1854, attained a height of six feet in fourteen days.—*N. Y. Times*.

PROSPECTUS.—With this number we close the third volume of the BOTANICAL GAZETTE. We enter upon Volume IV. with a greater feeling of stability than ever before, and with the hope that the support of the coming year will put all questions of the permanency of the journal far out of sight. In three years we have established such a patronage and position that the GAZETTE should command the confidence and energetic support of all botanists. If such will be given we can promise much greater things. We have been urged to raise the subscription price, but have concluded to keep it at its present rate, at least, for the coming year, hoping that we will obtain subscribers enough to justify us. We hope to have the continued support of the leading botanists of the country, and can promise to subscribers the very best botanical matter that can be procured for a journal of such limited capacity. We would also call attention to our rates of advertisement, and hope that the patrons of the GAZETTE who have anything pertaining to botany to sell, exchange, or procure, will make use of its columns. Subscriptions and articles should be sent in at once, that the work of the coming year may be fairly before us.—EDS.